



The Name of the Game is Training: Leveraging Army Gaming to Improve Training

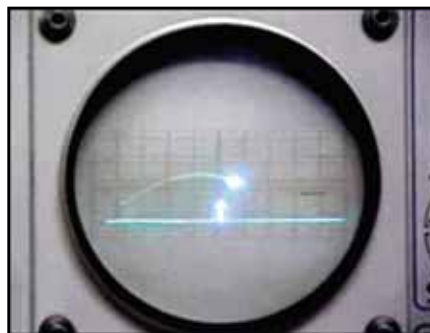
by Major David P. Shines

Computer games and game technology evolved at an incredible rate; in fact, gaming technology quickly grew into a \$9.5B industry in the United States alone. The popularity of technology primarily centers on entertainment; however, the U.S. Army has determined the advantages of leveraging the capabilities of computer games to educate and train its workforce. One of the most significant aspects of computer games is their ability to engage participants and maintain high levels of interest and attention. Studies show that computer games support an increase in a player's perceptual motor skills, such as hand-eye coordination, for quite some time.¹ Recent educational research concludes that specifically focused computer games can improve a player's overall problemsolving ability.²

History

Although the history of using games to train and educate the military is quite expansive, this article illustrates their use with a few highlights.

The history of using games for military training dates back to approximately 1000 BC, as the influential military commander and author Sun Tzu created a board game called *Wei Hai* and used it to train his subordinate commanders. This specifically designed playing board allowed players to maneuver armies (colored



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stones) with the objective of outflanking their enemy.³ The first "video game," credited to William Higginbotham in 1958, used an oscilloscope for a display and was called *Tennis for Two*. Created to impress other oscilloscope users (geeks), the significance of the game was not readily apparent. Since most video games created during that time were hardware intensive and only understood by those in the computer field, the first commercial video games were not introduced until 1972 in the Magnavox Odyssey Console.⁴

Over the past 10 years, the Army has used several computer games with limited success. Games, such as *Battle Command 2010* and *Spearhead II*, were developed or modified and had a limited use in Army training; however, they did not endure, primarily because there was no central agency to manage games for the Army.⁵

Current TRADOC Strategy

In an effort to reduce the significant amount of resources put into independent

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"...Virtual Battlespace 2 (VBS2) was selected as an Army gaming program of record with an enterprise license for use throughout the Army. This game, along with supporting hardware, is scheduled for fielding in the summer/fall 2009 time-frame. Fielding VBS2 will provide Army installations and schools the capability of providing game-based training venues for commanders and instructors to train units and individuals locally."

game acquisition and redundant game integration work by different units at several locations across the Army, the U.S. Army Training and Doctrine Command (TRADOC) established TRADOC Capability Manager (TCM) Gaming in April 2008. "Gaming" is the term designated for the application of computer games to support military training and education. TCM Gaming is responsible for combat development activities, to include planning, managing, fielding, and integrating gaming technology into Armywide training.

TCM Gaming focuses on ensuring that gaming technologies used by soldiers and leaders adhere to Army standards for training environments and eliminates any duplication of effort for gaming initiatives and programs. They also manage the Army's gaming requirements, and acquire games and required hardware resources for use Armywide.

On 19 December 2008, Program Executive Office for Simulation, Training, and Instrumentation (PEO-STRI) announced that *Virtual Battlespace 2 (VBS2)* was selected as an Army gaming program of record with an enterprise license for use throughout the Army. This game, along with supporting hardware, is scheduled for fielding in the summer/fall 2009 time-frame. Fielding *VBS2* will provide Army installations and schools the capability of providing game-based training venues for commanders and instructors to train units and individuals locally. *VBS2* enables users to load terrain data for expected areas of operation and tailor training scenarios to meet desired training objectives for the unit.

Game Integration at the Armor School

The Armor School considered a slightly different perspective on game integration and began with two questions: what types of skills or tasks are best supported by games; and what skill level will benefit the most from game integration? The answers to these two questions were revealed through analysis: cognitive tasks are best supported by game-based scenarios; and leaders, such as vehicle commanders, platoon leaders, and company commanders, gain the most benefit from game integration.



Cognitive tasks require leaders to think, analyze, process, make decisions, and/or issue orders, and are usually collective tasks. During the game integration process, we targeted leader cognitive tasks by immersing students in a tactical situation with visual and auditory stimulus, which created stress, while instructors monitored, coached, mentored, and facilitated discussion among the small group in the classroom.

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rain board and written vignettes for practical exercises, in the small group classroom. By all means, do not replace the terrain board; rather augment traditional terrain board training with games. The terrain board is essential for individual understanding early in the learning process; game-based scenarios allow the learner to put several previously learned tasks together in a dynamic environment.

One major advantage of game-based scenarios over terrain board for practical exercise, under our concept, is that it engages the entire small group and not just



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those at the terrain board. Current practical exercises on a terrain board in small group institutional instruction involves two students, out of a 16-student small group, standing at the terrain board taking prompts from an instructor, who describes the situation and then asks students for their action/decision. The 14 students not directly involved in the practical exercise are meant to observe and learn from the experience.

Compare this to a game-based scenario environment in which students not in positions to lead platoons, sections, or vehicles are gunners and drivers immersed in the situation and supporting the actions of leaders. Game-based scenarios for practical exercises are conducted like any other mission with the issuance of an operations order (OPORD), followed by troop leading procedures, rehearsals, and pre-combat checks. During a typical 2-hour exercise, only about one-third of the time is spent in the game environment.

The Armor School is currently using *DARWARS Ambush!*, a variation of a commercial off-the-shelf (COTS) game called "*Operation Flashpoint*," to support institutional training. *DARWARS Ambush!* was developed shortly after Operation Iraqi Freedom initially began and is a lessons-learned, game-based training environment developed under the Defense Advanced Research Projects Agency (DARPA) Training Superiority Program (DARWARS) and managed by the Office of Naval Research. *DARWARS Ambush!* is a computer-based training environment that enables squads to experience and respond to ambush situations.⁶ It has the capability to enable users to modify and create mission scenarios, to include adding systems, such as Abrams, Strykers, and Bradleys, or organizations up to company-sized units. These scenarios can support the practical exercise/training event.

The Armor School created 19 scenarios that support practical exercises for its programs of instruction, to include the 19D and 19K Advanced Leader Course (ALC) for recon/tank commanders, Maneuver-Senior Leader Course (M-SLC) for platoon sergeants, Armor Basic Officer Leaders Course III (BOLC III) for platoon leaders, Maneuver Captain Career Course (MCCC) for company/troop commanders, and the Army Reconnaissance Course (ARC). These scenarios are already incorporated into the 19D and 19K ALC, as well as the M-SLC. Beta testing is currently underway in the MCCC and ARC, as we discover new and innovative ways to use technology.

Way Ahead

The Armor School continues to work on leveraging games for training and education and conduct analysis on current efforts underway to refine those efforts and develop new and better ways to use games. We are poised to fully use VBS2 with its improved mission editor and much improved after-action review capability to enhance Armor School training for our leaders. The Armor School will receive the Army gaming tool kit as part of the TRADOC fielding, which consists of a 52-computer suite and enterprise license to use and develop VBS2. The Armor School is also programmed to participate in an empirical study of the effectiveness of our gaming efforts under the TRADOC Game Effectiveness Study. These findings will support analysis, design, and decisions for integrating gaming into other courses and methods of instruction such as distributed learning.



Notes

¹Robyn White, "Can Video Games Improve Learning, Motor Skills?," *Soundbyte*, Newsletter of the Department of Computer Science and Engineering, University of Minnesota, Fall-Winter 2007-2008.

²Susanne Jaeggi and Martin Buskuehl, "Improving Fluid Intelligence with Training on Working Memory," *Procedural Pa-*

per, Proceedings of the National Academy of Science of the United States of America, April 2008.

³Peter P. Perla, *The Art of Wargaming: A Guide for Professionals and Hobbyists*, United States Naval Institute, Annapolis, MD, March 1990.

⁴R. Blunt, "History of Game Project Management: from Engineer to Producer," ADL Webinar Series on Game Design, accessed online at http://www.dodgames.org/huke/html/downloads/GPM_Week_1_History_of_Game_Project_Management.ppt#404.3, The First Video Games, 28 October 2008.

⁵Sandra I. Erwin, "Video Games Gaining Clout as Military Training Tools," *National Defense Magazine*, 1 November 2000; and D. Oliver, "Battle Command 2010," *Equipment, Training, and Simulation News*, 2003.

⁶*DARWARS Ambush!* Website, Description of *DARWARS Ambush!*, accessed online at <http://ambush.darwars.net>, 28 October 2008.

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